

Modern Inventions Class
St. John's School
After school on Tuesdays starting October 7

This program focuses on each student revisiting and rebuilding several important and famous inventions. Students experience some of the same challenges that modern inventors had to troubleshoot as their inventions took shape. We will study and recreate the following:

Automated Systems

Since the Industrial Revolution, automation has transformed our world. Goods and services are more widely available and less expensive. Just imagine what a soda would cost from a vending machine if someone had to be paid to sit inside of it 24 hours a day to count change! Students learn how a simple automated sorting machine functions, as they build their own.

Water Wheels

Without turbines electrical power would not exist as abundantly as it does today. Turbines allow us to capture energy from moving fluids and are an important part of modern electrical production. Students learn about the origins of the turbine, as they create their own to experiment capturing energy from different kinds of fluids.

Zoetropes (Early motion picture devices)

Students learn how their brain is able to assemble a series of still pictures to create the illusion of motion, as they create a zoetrope. The zoetrope, which was among the first devices used to display motion pictures, requires no electricity. Its animation will amaze students' family and friends.

Ballast Tanks and Submarine Technology

Today, thanks to submarine technology, we are able to explore some of the deepest parts of the ocean and discover long lost shipwrecks like the Titanic. Students experiment with ballast tanks and density to discover what goes on inside a submarine that allows it to sink, float, and remain beneath the ocean for months at a time!

Fiber Optics

Fiber optic technology is used to transmit information around the world. The information travels across fiber optic cables as pulses of light instead of electrical pulses. Students experiment with bending light along pathways and work with some of the challenges that scientists face, as they try to develop more efficient optical cables.

Airfoils and Wings

Many people have been inspired by watching birds take to the air and fly away. In fact, many early inventors risked their lives trying to create bird-like wings so they too could fly! Unfortunately, many of these courageous people never made it off the ground but instead wound up quite hurt. Students learn about the history of flight and the airfoil, as they build and test wing sections to learn about Bernoulli's principle of lift!

Pinhole Cameras

Some cameras don't require lenses at all! Students learn what happens inside an everyday camera and discover how to build a camera without a lens. For those who would like to take a

career creating spy devices, this is a first glimpse into a surveillance camera that could be easily hidden and is virtually undetectable.

Steam Engines (Boilers)

Students learn the difference between internal and external combustion engines, as they see how a basic steam boiler works and how steam can be used to create vehicular motion. Students will build a simple boiler to power their own small boat!

Electromagnetic Maglev Trains

The idea of levitation is something people have dreamed of and written about for thousands of years as part of rituals and folk tales. Modern science has made use of the electromagnet to make levitation possible. Students learn how electromagnetic levitation is used to reduce friction and increase the speed of trains up to 270 miles per hour!

Hovercrafts

Hovercrafts are not only used as toys and in movies. These floating vehicles have become important sources of transportation for the military, emergency response services, and the public. Hovercrafts are unique, because they are able to power across nearly every flat surface: solid, liquid, or in-between. Students build their own small hovercrafts to explore how this device functions.

Please contact me with any questions!

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